

What is claimed is:

1 1. A load coil, comprising:  
2 a coupled inductor having a first winding having a first intra-winding capacitance  
3 and a second winding having a second intra-winding capacitance, the first and second  
4 windings wound about an inductor core, the first and second windings having an inter-  
5 winding capacitance;  
6 a first capacitor disposed in parallel with the first winding and a second capacitor  
7 disposed in parallel with the second winding for increasing the impedance of the load coil  
8 to certain signals above 4 kHz.

1 2. The load coil according to claim 1, wherein a ratio of the inter-winding  
2 capacitance to the combined capacitance of the first intra-winding capacitance and the  
3 first capacitor is in the range of 0.75 – 1.25.

1 3. The load coil according to claim 1, wherein a ratio of the inter-winding  
2 capacitance to the combined capacitance of the first intra-winding capacitance and the  
3 first capacitor is in the range of 0.99 – 1.01.

1 4. The load coil according to claim 1, wherein the first and second capacitors each  
2 have a capacitance in the range of 770 – 1290 pF.

1 5. The load coil according to claim 1, wherein the inter-winding capacitance is in the  
2 range of 1,030 – 1,050 pF and the capacitance of each of the first and second capacitors is  
3 in the range of 770 – 1290 pF.

1 6. The load coil according to claim 1, wherein the certain signals above 4 kHz  
2 further comprise signals in the range of 25 kHz – 1.1 MHz.

1 7. A load coil, comprising:  
2 a coupled inductor having an inter-winding capacitance, an intra-winding  
3 capacitance, and an inductance;  
4 the ratio of the inter-winding capacitance to the intra-winding capacitance being  
5 in the range of about 0.75 – 1.25 for increasing the impedance of the load coil to signals  
6 in the range of 25 kHz – 1.1 MHz.

1 8. The load coil according to claim 7, wherein the ratio of the inter-winding  
2 capacitance to the intra-winding capacitance is in the range of about 0.99 to 1.01

1 9. A load coil, comprising:  
2 a first inductor including a first winding and a first core, the first winding having  
3 upstream and downstream ends and a first intra-winding capacitance;  
4 a second inductor including a second winding and a second core, the second  
5 winding having upstream and downstream ends and having a second intra-winding  
6 capacitance;  
7 a first capacitor disposed between the upstream end of the first inductor and the  
8 downstream end of the second inductor to offset at least a portion of the first and second  
9 intra-winding capacitances for improving the impedance of the load coil to DSL-band  
10 signals; and  
11 a second capacitor disposed between the upstream end of the second inductor and  
12 the downstream end of the first inductor to offset at least a portion of the first and second  
13 intra-winding capacitances for improving the impedance of the load coil to DSL-band  
14 signals.

1 10. A load coil for being coupled to a local loop to improve transmission of POTS  
2 band signals over the local loop, comprising:  
3 a first inductor having a first winding and a first core, the first inductor for  
4 improving transmission of POTS band signals on a first wire of the local loop; and  
5 a second inductor having a second winding and a second core for improving  
6 transmission of POTS band signals on a second wire of the local loop.

1 11. A DSL repeater for improving transmission of POTS band and DSL band signals  
2 over a local loop, the repeater comprising:  
3 an upstream signal amplifier for amplifying upstream DSL signals;  
4 a downstream signal amplifier for amplifying downstream DSL signals; and  
5 a load coil disposed in parallel with the upstream and downstream signal  
6 amplifiers for improving the transmission of POTS band signals over the local loop.

1 12. The DSL repeater according to claim 11, wherein the load coil further comprises:  
2 a coupled inductor having a first winding having a first intra-winding capacitance  
3 and a second winding having a second intra-winding capacitance, the first and second  
4 windings wound about an inductor core, the first and second windings having an inter-  
5 winding capacitance;  
6 a first capacitor disposed in parallel with the first winding and a second capacitor  
7 disposed in parallel with the second winding for increasing the impedance of the load coil  
8 to the upstream and downstream DSL signals.

1 13. The DSL repeater according to claim 12, wherein a ratio of the inter-winding  
2 capacitance to the combined capacitance of the first intra-winding capacitance and the  
3 first capacitor is in the range of 0.75 – 1.25.

1 14. The DSL repeater according to claim 12, wherein a ratio of the inter-winding  
2 capacitance to the combined capacitance of the first intra-winding capacitance and the  
3 first capacitor is in the range of 0.99 – 1.01.

1 15. The DSL repeater according to claim 12, wherein the first and second capacitors  
2 each have a capacitance in the range of 770 – 1290 pF.

1 16. The DSL repeater according to claim 12, wherein the inter-winding capacitance is  
2 in the range of 1,030 – 1,050 pF and the capacitance of each of the first and second  
3 capacitors is in the range of 770 – 1290 pF.

1 17. The DSL repeater according to claim 11, wherein the load coil further comprises:  
2 a first inductor having a first winding and a first core, the first inductor for  
3 improving transmission of POTS band signals on a first wire of the local loop; and  
4 a second inductor having a second winding and a second core for improving  
5 transmission of POTS band signals on a second wire of the local loop.

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1 18. The DSL repeater according to claim 11, wherein the load coil further comprises:  
2 a first inductor including a first winding and a first core, the first winding having  
3 upstream and downstream ends and a first intra-winding capacitance;  
4 a second inductor including a second winding and a second core, the second  
5 winding having upstream and downstream ends and having a second intra-winding  
6 capacitance;  
7 a first capacitor disposed between the upstream end of the first inductor and the  
8 downstream end of the second inductor to offset at least a portion of the first and second  
9 intra-winding capacitances for improving the impedance of the load coil to DSL-band  
10 signals; and  
11 a second capacitor disposed between the upstream end of the second inductor and  
12 the downstream end of the first inductor to offset at least a portion of the first and second  
13 intra-winding capacitances for improving the impedance of the load coil to DSL-band  
14 signals.